COMPUTER CONTROL APPARATUS

BACKGROUND OF THE INVENTION

The present invention relates to computer control apparatus. More particularly, it relates to a retractable keyboard for a computer operator station, or interface console. In the use of digital computers for the control and manipulation of data, either for the sake of data itself, or as a real time controller for an on-going industrial process, there is provided an operator interface console. The console includes a display apparatus such as a cathode ray tube for displaying data, in accordance with a predetermined format, or in one of several predetermined formats. The console also includes an operators keyboard by means of which the operator may call for data from the computer and select the predetermined format in which the data is to be displayed. The operator keyboard also enables the operator to insert data into the computer system and to change certain parameters.

In addition to the operators keyboard, means are also provided for establishing or setting the predetermined formats, for establishing or changing the data base for the computer, for setting up certain graphics for display on the display device as a function of the computer data changes of this type may be considered as engineering changes in the computer operation. One means for accomplishing the latter feature is a so-called engineers keyboard. Heretofore, it has been the practice to make the engineers keyboard a fixed part of the console. Alternatively, the engineers keyboard has been in the form of a portable, separate module. In the fixed form, the engineers keyboard has been installed as an extra keyboard in the work space of the console. In the module form the module rested on the work space surface of the console. In either form the engineers keyboard, although used infrequently, is necessary, and clutters and reduces the available work space. Additionally, being on top and in view, it presents the potential for inadvertant manipulation by an operator who is not trained or authorized to affect the changes that would result from such manipulation. Such unauthorized changes would tend to invalidate the computer operation and, in the case of an industrial process system may have disastrous results.

SUMMARY OF THE INVENTION

It is, accordingly, an object of the present invention to provide an improved computer interface console with a retractable engineer's keyboard.

It is another object of the present invention to provide a retractable keyboard for a computer interface console.

In accomplishing these and other objects, there has been provided, in accordance with the present invention, a computer interface console having a cathode ray tube display, an operators keyboard, and an engineers keyboard. The engineers keyboard is so mounted that it may be moved to a position in front of the console in substantial alignment with the cathode ray tube and the operators keyboard when it is desired to make changes in the computer data base. At other times, the engineers keyboard is moved to a retracted position below the work space of the console, under the operators keyboard. In that retracted position, the work space is clear and uncluttered by the engineers keyboard. Additionally, with the engineers keyboard in the retracted position, it is unobstrusive and unavailable to unauthorized operators. Thus the probability of inadvertent or unauthorized manipulation of the engineers keyboard is greatly reduced.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the present invention may be had from the following detailed description when read in the light of the accompanying drawings, in which:

FIG. **1** is a perspective view of a computer interface console with a retractable engineers keyboard extended.

FIG. **2** is a side view of the console shown in FIG. **1** but with the engineers keyboard retracted.

FIG. **3** is an exploded view of an engineers keyboard and mounting bracket in accordance with the present invention.

FIG. **4** is a side view of the engineers keyboard and mounting bracket assembly in accordance with the present invention; and

FIG. **5** is a cross-sectional view of a structural detail of the assembly shown in FIG. **4**.

DETAILED DESCRIPTION

Referring now to the drawings in more detail, there is shown in FIGS. **1** and **2**, an operators computer interface console **2**. The console includes a display device **4** in the form of a cathode ray tube display. The display device **4** is mounted as an upper assembly on a base member **6**. The base member **6** includes a top **8** which comprises a support for the display member **4** and provides a work surface area. An operators keyboard **10** is mounted in the work surface area of the top **8**. An engineers keyboard **12** is retractably secured to the top **8** to be selectively positioned at the front edge of the top **8** or retracted to lie completely beneath the top **8**. In FIG. **1**, the engineers keyboard **12** is illustrated in operative position, in front of the top **8** of the base member **6**. In this position the authorized engineer may make the appropriate engineering changes in the internal programming of the computer to effect the changes in format, data base, etc. In FIG. **2**, the engineers keyboard **12** is illustrated in its retracted position where it is inaccessible to the operator.

In FIGS. **3**, **4** and **5**, there are shown details of a mounting bracket for retractably supporting the engineers keyboard. The keyboard includes a usual complement of keys **14** mounted in a surrounding bezel **16**. The bezel **16** has an extending lip **18** which extends beyond the structure of the keyboard in the direction of the nominal top of the keyboard. The functional apparatus associated with the keys **14** are enclosed in a housing member **20**. A pair of cantilever support arms **22** extend from the rear of the housing **20**. The bottom plate **24** of the housing **20** extends rearwardly of the housing **20** and spans the space between the two support arms **22**, giving lateral support to those arms. A pair of guide pins **26**, shown in enlarged cross-section in FIG. **5**, extend outwardly from each of the two support arms **22**. The two pins **26** in each of the arms **22** are spaced from each other, longitudinally of the arms **22**, a distance to give cantilever support for the keyboard assembly. In an operative embodiment constructed in accordance with the present invention, the pins **26** were spaced about $3\frac{1}{2}$ inches on centers. As shown in FIG. **5**, the guide pins **26** have a smooth cylindrical outer end with the opposite